

## ABSTRACT

A magnetic disk control apparatus is capable of reducing the overall length of synchronization fields in split sectors and hence capable of increasing the storage capacity for data fields. The apparatus records data for each sector in such a manner that when a servo field is present in a sector, the sector is split into a first split sector and a second split sector each including a synchronization field and a data field. The apparatus has a storage medium, a head, a mechanical section that controls the relative position of the storage medium and the head, a hard disk controller that controls write timing and read timing, and a read channel that modulates and writes a synchronization field and a data field according to the write timing, performs phase synchronization and frequency synchronization based on the synchronization field read according to the read timing, and demodulates the data field according to the obtained phase and frequency. The synchronization field of each second split sector has a length required only for phase synchronization.